Iron Efficiency of Malus Species

M. xiaojinensis Cheng et Jiang was iron efficient, M. baccata (l) Borkh iron inefficient while M. micromalus Makinowas intermediate. There was no differences in stem or root growth and in the content of mineral elements between iron deficiency and adequate iron supply. The photosynthesis rate of the young top leaves and their chlorophyll content, under adequate iron supply were highest for M. xiaojinensis, followed by M. micromalus, the lowest being M. baccata. Under adequate iron supply ATP content in the root from high to low were as follows: M. Baccata, M. micromalus, M. xiaojinensis. Under iron stress ATP content increased in M. xiaojinensis and M. micromalus and a decrease in M. baccata. The results obtained indicate that root ATP content and P/Fe ratio appear to be reliable criteria in screening for iron-efficient genotypes in the genus Malus.

From Haihan et al. 1995. Acta Hort 403:198-204.

Inheritance of Apple Sweetness and Acidity

Fruit acidity appears to be jointly governed by two genetic models, a single major gene and certain multiple genes. The genetic effect of the major gene (Ma-ma) is incomplete dominance. The homozygous dominant, heterozygote, and homozygous recessive show high acid, subacid and low acid phenotypes respectively. The effect of the multiple genes on fruit acidity is so great that it can cancel the effect of the major gene and make progenies drift off from the typical segregation. Fruit sweetness is governed by multiple genes that show additive and non-additive genetic effect, and the segregation of the soluble solids, total sugar and reducing sugar contents of hybrids all show continuous variance tending to normal distribution.

From Baojiang et al. 1995. Acta Hort 403:233-240.

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